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Applicant: Alma L. Burlingame et al. Confirmation No. 8829

Filed: Sep 05, 2003 Group Art Unit: 1652

Docket No. UCSF04-016 Examiner: Meah, Mohammad Y

Title: *Protein O-Sulfonation*

DECLARATION UNDER 37CFR1.132

I, Prof. Alma L. Burlingame, declare and state as follows:

1. I am a Professor of Chemistry and Pharmaceutical Chemistry in the Department of Pharmaceutical Chemistry at the University of California, San Francisco. The Regents of the University of California is the assignee of this patent application. I have authored numerous scientific papers in the field of protein modification, and I am a coinventor of this patent application. A copy of my curriculum vitae is attached.

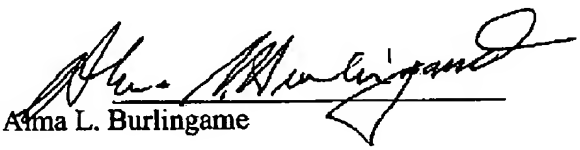
2. The Specification describes the specific detection of O-sulfonation of a serine or threonine residue in diverse eukaryotes (e.g. p.11, line 9 – p.12, line 20). The Specification describes the use of a variety techniques for specifically detecting the O-sulfonation, including mass spectrometry, chemical analysis, radiolabeling, and specific antibodies (e.g. p.4, line 27 – p.6, line 8; p.11, line 17 – p.13, line 8). The Specification provides detailed protocols and working examples for these various detection methods including mass spectrometry (e.g. p.4, line 32 – p.5, line 9; p.10, line 27 – p.14, line 28); selective detection using single-chain sulfopeptide-specific phage antibodies (e.g. p.14, line 30 – p.17, line 11) and sulfopeptide-specific monoclonal antibodies (e.g. p.17, lines 13-29); and specific detection of chemically labeled O-serine and threonine sulfonation (e.g. p.8, line 15 – p.9, line 2; see also exemplification at p.19, lines 12-26). In my opinion the specification amply describes and exemplifies the claimed methods to one skilled in the art.

3. The Specification describes the specific detection of O-sulfonation of a serine or threonine residue in diverse proteins (e.g. p.11, line 9 – p.12, line 20); in particular, the specification demonstrates protein O-sulfonations in diverse proteins across diverse life forms including neuronal filament proteins of Lymnaea stagnalis (a freshwater snail), a cathepsin-C protein of Plasmodium falciparum (a malaria-causing parasite), and a tyrosine kinase (Ror2) of humans (p.9, lines 22-30; p.11, line 9 – p.12, line 20). Furthermore, the disclosed studies reveal a large number of proteins to be differentially sulfonated across differing physiological conditions, including injured versus non-injured axoplasms (p.13, line 13 – p.14, line 28).

The Specification describes the use of a variety of techniques for specifically detecting the O-sulfonation including using mass spectrometry, chemical analysis, radiolabeling, and specific antibodies (e.g. p.4, line 27 – p.6, line 8; p.11, line 17 – p.13, line 8). The Specification provides detailed protocols and working examples for these various detection methods including mass spectrometry (e.g. p.4, line 32 – p.5, line 9; exemplification at p.10, line 27 – p.14, line 28); selective detection using single-chain sulfopeptide-specific phage antibodies (e.g. p.14, line 30 – p.17, line 11) and sulfopeptide-specific monoclonal antibodies (e.g. p.17, lines 13-29); and specific detection of chemically labeled O-serine and threonine sulfonation (e.g. p.8, line 15 – p.9, line 2; see also exemplification at p.19, lines 12-26). The Specification teaches and exemplifies application of the methods to diverse O-serine and threonine sulfonated proteins and peptides of diverse cell types and across diverse life forms using a variety of established specific detection methodologies. In my opinion the Specification enables on skilled in the art to practice the invention without undue experimentation.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application and any patent issuing therefrom.

Date: June 6, 2006



Prof. Alma L. Burlingame